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# Quality Engineering Test Report

**SERIES: SP-200 200 WATTS SIGLE OUTPUT SWITCHING POWER SUPPLY**

**SAMPLE: A.SP-200-3.3 3.3V / 40A D.SP-200-12 12V /16.7A G.SP-200-24 24V /8.4A**
**B.SP-200-5 5V /40A E.SP-200-13.5 13.5V /14.9A H.SP-200-27 27V /7.5A**
**C.SP-200-7.5 7.5V /26.7A F.SP-200-15 15V /13.4A I.SP-200-48 48V /4.2A**

| NO | TEST ITEM | TEST CONDITION / SPECIFICATION | RESULT | VERDICT |
|---|---|---|---|---|
| 1 | AC INPUT VOLTAGE RANGE | I/P:TESTING SPEC:85-264VAC<br>O/P:FULL LOAD | C: 66.2V~267VAC | P |
| 2 | LINE REGULATION | I/P:85-264VAC SPEC:<br>O/P:FULL LOAD<br>A: ±0.5%<br>B: ±0.5%<br>C:±0.5%<br>D: ±0.5%<br>E: ±0.5%<br>G:±0.5%<br>H: ±0.5%<br>I: ±0.5% | A: -0. 18% - - 0.18%<br>B: 0% - 0%<br>C: -0.08% - +0.00%<br>D: 0% - 0.04%<br>E: 0% - -0.04%<br>F: 0% - 0%<br>G: 0% - 0%<br>H: 0.02% - 0%<br>I: 0% - 0.01% | P |
| 3 | LOAD REGULATION | I/P:230VAC SPEC:<br>O/P:0% LOAD TO FULL LOAD<br>A: ±1%<br>B: ±1%<br>C: ±1%<br>D: ±0.5%<br>E: ±0.5%<br>F: ±0.5%<br>G: ±0.5%<br>H: ±0.5%<br>I: ±0.5% | A: -0.39% - 0.935%<br>B: -0.6% - 0.49%<br>C: -0.33% - +0.24%<br>D: 0.05 % - 0.14%<br>E: 0% - -0.08%<br>F: 0% - 0%<br>G: 0.03% - 0.05%<br>H: -0.06% - 0.06%<br>I: 0.06% - -0.08% | P |
| 4 | OUTPUT VOLTAGE TOLERANCE | I/P:85~264VAC SPEC:<br>O/P:0% LOAD TO FULL LOAD<br>A: ±2%<br>B: ±2%<br>C: ±2%<br>D: ±2%<br>E: ±2%<br>F: ±2%<br>G: ±1%<br>H: ±1%<br>I: ±1% | A: -0.927% - +0.209%<br>B: -1.1% - 0%<br>C: -0.16% - -0.67%<br>D: 0.05% - 0.2%<br>E: 0% - 0.08%<br>F: 0.07% - 0%<br>G: 0.08% - 0%<br>H: -0.01% - 0.1%<br>I: -0.07% - 0.06 % | P |
| 5 | RIPPLE & NOISE | I/P:230VAC SPEC:<br>O/P: FULL LOAD<br>A:100mV<br>B:100mV<br>C:100mV<br>D:100mV<br>E:100mV<br>F:100mV<br>G:150mV<br>H:150mV<br>I:250mV | A: 43mV<br>B: 62mV<br>C: 76mV<br>D: 49mV<br>E: 47mV<br>F: 43mV<br>G: 57mV<br>H: 74mV<br>I: 63mV | P |
| 6 | AC INPUT CURRENT | I/P:230VAC SPEC: 1.4A(3.3V:1A)<br>O/P:FULL LOAD | C:1.155A | P |
| 7 | MAX. INRUSH CURRENT | I/P:230VAC SPEC: 40A<br>O/P:FULL LOAD | C:36.656A | P |

NEXT

| NO | TEST ITEM | TEST CONDITION / SPECIFICATION | RESULT | VERDICT |
|---|---|---|---|---|
| 8 | O/P VOLTAGE ADJ.RANGE | I/P:230VAC<br>O/P:MIN. LOAD<br>SPEC: +10% - -5%<br>A:3.1V~3.6V<br>B:4.7V~5.5V<br>C:7.12V~8.25V<br>D:11.4V~13.2V<br>E:12.8 V~14.8V<br>F:14.2V~16.5V<br>G:22.8V~26.4V<br>H:25.6V~29.7V<br>I:45.6V~52.8V | A:3.103V~3.795V<br>B:4.5V~5.8V<br>C:6.323V~8.984V<br>D:10.4V~13.87V<br>E:10.73V~14.88V<br>F:12.29V~17.49V<br>G:19.3V~27.34V<br>H:20.2V~30.3V<br>I:41.8V~54.3V | P |
| 9 | SET UP TIME | I/P:230VAC<br>O/P:FULL LOAD<br>SPEC:600ms | C:249.8mS | P |
| 10 | HOLD UP TIME | I/P:230VAC<br>O/P:FULL LOAD<br>SPEC:20mS | C:30.785mS | P |
| 11 | EFFICIENCY | I/P:230VAC<br>O/P: FULL LOAD<br>SPEC:<br>A:65%<br>B:71%<br>C:76%<br>D:79%<br>E:80%<br>F:81%<br>G:83%<br>H:83%<br>I:84% | A: 65.8%<br>B: 72.1%<br>C: 77.08%<br>D: 80.56%<br>E: 82.7%<br>F: 82.3%<br>G: 84.8%<br>H: 84.6%<br>I: 84.8% | P |
| 12 | OVER LOAD PROTECTION | I/P:230VAC<br>O/P:TESTING<br>SPEC:105%~150% | A: 125%<br>B: 132%<br>C: 124%<br>D: 125%<br>E: 125%<br>F: 127%<br>G: 113%<br>H: 111%<br>I: 128% | P |
| 13 | OVER VOLTAGE PROTECTION | I/P:230VAC<br>O/P: TESTING<br>SPEC:110%~135%<br>A:3.63~4.45 V<br>B:5.5~6.75V<br>C:8.25~10.12V<br>D:13.2~16.2V<br>E:14.8~18.2V<br>F:16.5~20.2V<br>G:26.4~32.4V<br>H:29.7~36.4V<br>I:52.8~64.8V | A: 4.09V<br>B: 5.83V<br>C: 9.2V<br>D: 14.5V<br>E: 16.6V<br>F: 18.4V<br>G: 28.6V<br>H: 35.5V<br>I: 58.2V | P |
| 14 | GROUND LEAKAGE CURRENT | I/P:240VAC<br>SPEC:<br>L-FG--<2mA<br>N-FG--<2mA | A: L-FG:0.3mA<br>N-FG:0.25mA | P |
| 15 | GROUNDING CONTINUITY | SPEC: FG--CHASSIS<0.1Ohms/2min | C: 65mOhms | P |
| 16 | INSULATION RESISTANCE | SPEC: O/P-FG 500VDC / 100M Ohms MIN.<br>I/P-O/P 500VDC / 100M Ohms MIN.<br>I/P-FG 500VDC / 100M Ohms MIN. | C: O/P-FG >100MOhms<br>I/P-O/P >100MOhms<br>I/P-FG >100MOhms | P |

PREVIOUS NEXT

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>17</td><td>DIELECTRIC / WITHSTAND VOLTAGE</td><td>SPEC: I/P- O/P: 3000VAC/ 60 sec (10mA CUT-OFF)<br>I/P - FG: 1500VAC/60 sec (10mA CUT-OFF)<br>O/P - FG: 500VAC/60sec (10mA CUT-OFF)</td><td>C: I/P-O/P :4.38mA<br>I/P-FG :3.87mA<br>O/P- FG :3.26mA</td><td>P</td></tr>
<tr><td>18</td><td>BURN-IN TEST</td><td>I/P: 230VAC O/P:FULL LOAD<br>TA:25.3℃ BURN-IN DURATION : 2.0 hrs</td><td>B: NON BREAK</td><td>P</td></tr>
<tr><td rowspan="3">19</td><td rowspan="3">ENVIRONMENT TEST</td><td>1.LOW TEMPERATURE TEST<br>I/P : 230 VAC O/P : 80% LOAD<br>AMBIENT TEMPERATURE : -10.1°C</td><td>B:<br>AFTER 6 hrs POWER ON OK</td><td rowspan="3">P</td></tr>
<tr><td>2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST<br>I/P:230VAC O/P:FULL LOAD<br>AMBIENT TEMPERATURE : 40.1°C with cooling FAN</td><td>B :<br>AFTER 86 hrs NON BREAK</td></tr>
<tr><td>3.HIGH HUMIDITY HIGH VOLTAGE ON/OFF TEST<br>I/P : 272VAC O/P : FULL LOAD<br>AMBIENT TEMPERATURE : 25°C<br>AMBIENT HUMIDITY : 95%</td><td>B:<br>AFTER14.5hrs POWER ON/OFFNON BREAK</td></tr>
<tr><td>20</td><td>TEMPERATURE RISE TEST Trise OF PARTS</td><td colspan="2">B: I/P :230VAC AFTER 2 .5hrs BURN-IN<br>O/P :FULL LOAD TA:23.3°C
<table>
<tr><th></th><th>POSITION</th><th>P/N</th><th>TEMP</th><th>Trise</th></tr>
<tr><td></td><td>BD1</td><td>BRIDGE DIODE</td><td>40.3°C</td><td>17°C</td></tr>
<tr><td></td><td>Q2</td><td>MAIN TRANSISTOR</td><td>50.8°C</td><td>27.5°C</td></tr>
<tr><td></td><td>Q1</td><td>PFC TRANSISTOR</td><td>59.3°C</td><td>36°C</td></tr>
<tr><td></td><td>T1</td><td>MAIN TRANSFORMER COIL</td><td>54.6°C</td><td>31.3°C</td></tr>
<tr><td></td><td>T1</td><td>MAIN TRANSFORMER CORE</td><td>56.6°C</td><td>33.3°C</td></tr>
<tr><td></td><td>D20</td><td>O/P DIODE</td><td>65.2°C</td><td>41.9°C</td></tr>
<tr><td></td><td>C42</td><td>O/P FILTER CAPACITOR</td><td>50°C</td><td>26.7°C</td></tr>
<tr><td></td><td>L2</td><td>O/P CHOCK</td><td>88.3°C</td><td>65°C</td></tr>
<tr><td></td><td>C5</td><td>I/P FILTER CAPACITOR</td><td>42.3°C</td><td>19°C</td></tr>
<tr><td></td><td>LF1</td><td>LINE FILTER COIL</td><td>43.7°C</td><td>20.4°C</td></tr>
<tr><td></td><td>D2</td><td>PFC DIODE</td><td>41°C</td><td>17.7°C</td></tr>
</table></td><td>P</td></tr>
<tr><td>21</td><td>LIFE CYCLE</td><td colspan="2">SUPPOSE C42 IS THE MOST CRITICAL COMPONENT<br>I/P:230VAC O/P:FULL LOAD Ta:25°C Tc42 : 51.7°C Life:229432hrs<br>I/P:230VAC O/P:FULL LOAD Ta:40°C Tc42 : 74.5°C Life:64531hrs</td><td></td></tr>
<tr><td>22</td><td>CRITICAL COMPONENT RECORD<br>( FOR QC INSPECTION REFERENCE ONLY )</td><td colspan="3">B :<br>FUSE :4A/250V GFE/GNA<br>BRIDGE DIODE : D10XB60 4A/800V GL<br>LINE FILTER :TF-306<br>TRANSFOMER :TF-609<br>OUTPUT DIODE :SBL3040 30A/40V ESAD83-004<br>OUTPUT CAPACITOR :ELNA 2200uF/10V 105°C RJH<br>INPUT CAPACITOR :HITACHI 1000uF/400V,85°C HP3/USC<br>P.C.B :SP-200 CEM-3 20Z SS</td></tr>
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PREVIOUS NEXT

| DATE | SAMPLE | NOTE | TEST | APPROVAL |
|---|---|---|---|---|
| 19990514 | RD SAMPLE 5V,24V, 48V | PASS | H.C.LIOU | Max Lin |
| 19990719 | RD SAMPLE 5V,12V, 24V,48V | PASS | H.C.LIOU | Max Lin |
| 19990719 | PRODUCT SAMPLE 9911A33 | PASS | C.C.CHEN | Max Lin |
| 20000120 | PRODUCT SAMPLE A001B04 5V,27V | PASS | C.C.CHEN | Max Lin |
| 20000613 | PRODUCT SAMPLE A006A21 3.3V | PASS | VINCENT | Max Lin |
| 20000817 | PRODUCT SAMPLE A006A21 3.3V | PASS | VINCENT | Max Lin |
| 20010327 | PRODUCT SAMPLE A103C03 3.3V | PASS | VINCENT | Max Lin |
| 20010822 | PRODUCT SAMPLE A107C07D 7.5V | PASS | VINCENT | Max Lin |

PREVIOUS